NAVAL WAR COLLEGE
Newport, R.I.

RULES OF ENGAGEMENT FOR NON-LETHAL WEAPONS

By

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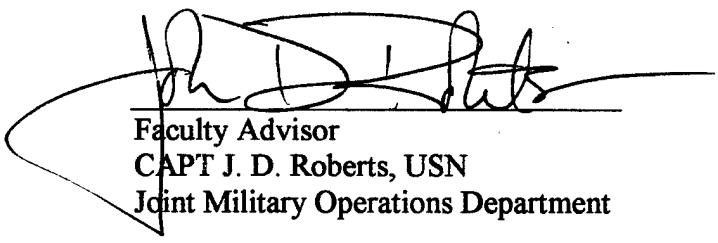
A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: 

May 18, 1998



Faculty Advisor
CAPT J. D. Roberts, USN
Joint Military Operations Department

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED	
2. Security Classification Authority:	
3. Declassification/Downgrading Schedule:	
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.	
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT	
6. Office Symbol: C	**7. Address:** NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207
8. Title (Include Security Classification): RULES OF ENGAGEMENT FOR NON-LETHAL WEAPONS (U)	
9. Personal Authors: LIEUTENANT COMMANDER MICHAEL W. DOUGLASS, USN	
10. Type of Report: FINAL	**11. Date of Report:** 18 MAY 1998
12. Page Count: 28	
13. Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.	
14. Ten key words that relate to your paper: NON-LETHAL WEAPONS (NLW), RULES OF ENGAGEMENT (ROE), MILITARY OPERATIONS OTHER THAN WAR (MOOTW), WAR, MEDIA, CHEMICAL WEAPONS, BIOLOGICAL WEAPONS, LASER WEAPONS, ACOUSTIC WEAPONS	

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ISSUES FOR NON-LETHAL WEAPONS ARE GROUPED INTO FIVE BROAD CATEGORIES; RISK, HUMANITARIAN, POLITICAL, OBJECTIVE, AND LEGAL. WITHIN THESE CATEGORIES THERE ARE MANY ELEMENTS THAT MUST BE EXPLORED AND CONSIDERED IN DEVELOPING ROE. TWO RECENT PROPOSALS INCLUDE DEDICATED PEACETIME ROE TRAINING AND CONSTRUCTION OF A DECISION MATRIX THAT MATCHES ACTION WITH APPROPRIATE RESPONSE.

BUT BECAUSE NON-LETHAL WEAPONS ARE SO INEXTRICABLY LINKED TO LETHAL WEAPONS, THE ROE MUST ALLOW THEM BOTH TO WORK AS A COMPLEMENTARY TEAM IN THE FORCE CONTINUUM AND APPLY ACROSS THE SPECTRUM FROM MOOTW TO WAR. WHAT IS NEEDED NOW, IS A MERGING OF THE PROPOSED ROE TRAINING AND DECISION MATRIX CONCEPTS, APPROPRIATELY TAILORED TO APPLY ACROSS THE SPECTRUM OF WEAPONS AND SITUATIONS, WHILE CONSIDERING THE MANY ISSUES INVOLVED.

16. Distribution / Availability of Abstract:	**Unclassified** X	**Same As Rpt**	**DTIC Users**
17. Abstract Security Classification: UNCLASSIFIED			
18. Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT			
19. Telephone: 841-6461		**20. Office Symbol:** C	

Abstract Of

RULES OF ENGAGEMENT FOR NON-LETHAL WEAPONS

Non-lethal weapons have changed the nature of force options available to U.S. commanders. Where there used to be only two options; no force and lethal force, now there has developed a 'continuum' where force can be matched in proportionality to an enemy's action. This force continuum has necessitated a change in Rules of Engagement (ROE) in order that they consider the new issues associated with non-lethal weapons, as well as the integration of lethal with non-lethal force in Military Operations Other Than War (MOOTW) and war.

Issues for non-lethal weapons are grouped into five broad categories; risk, humanitarian, political, objective, and legal. Within these categories there are many elements that must be explored and considered in developing ROE. Two recent proposals include dedicated peacetime ROE training and construction of a decision matrix that matches action with appropriate response.

But because non-lethal weapons are so inextricably linked to lethal weapons, the ROE must allow them both to work as a complementary team in the force continuum and apply across the spectrum from MOOTW to war. What is needed now, is a merging of the proposed ROE training and decision matrix concepts, appropriately tailored to apply across the spectrum of weapons and situations, while considering the many issues involved.

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Rules Of Engagement for Non-Lethal Weapons

"For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill."
Sun Tzu[1]

Introduction

Non-lethal weapons have recently come into vogue because, as Sun Tsu suggested 2500 years ago, they imply a kind of humanizing of war that reflects the societal values of many modern nations. Just the very concept evokes images of revolutionary change in how wars are fought; 'war without death' and 'bloodless wars'. Most literature on the subject deals with the wide variety of current and emerging technologies, their impact on war and Military Operations Other Than War (MOOTW), and the unique issues associated with this new tool on the battlefield. This paper will instead focus on the Rules Of Engagement (ROE) for how we *use* this new tool. It will show that the inextricable link between lethal and non-lethal weapons, and between MOOTW and war, suggests the need for a single set of ROE that covers the continuum from no force to lethal force in all crises. It is the *usability* of these ROE that will make non-lethal weapons either the messiah of 'bloodless wars' or the albatross of 20th century weapons development.

This paper will assume that the reader has some fundamental knowledge of non-lethal weapons and therefore only briefly examines the terminology, history, and types of weapons. The analysis will then begin with the issues affecting non-lethal weapons ROE, highlight some current proposals on ROE, and conclude with a discussion of what is needed for the future.

> *"Tonight we are supposed to get hit by 150 gunmen. The men are said to have women and children holding hands walking in front of the gunmen as they shoot -- sort of a human shield... I'm scared, real damn scared."*
> *{Private First Class Richard Kowalewski, 20. U.S. Army Ranger killed in action in Mogadishu}*

Background

The excerpt above by PFC Kowalewski[2] highlights one of the new dangers facing U.S. forces conducting military operations in an era of heightened moral consciousness and media effectiveness. It also highlights the opportunity for use of a new tool on the battlefield – non-lethal weapons.

Terms: There is considerable controversy and misunderstanding over the meaning of the term 'non-lethal'. At issue is the concept of *lethality*. Non-lethal weapons, while intended to only temporarily incapacitate, may indeed have lethal or permanent maiming effects. Sticky foams, for example, can inadvertently suffocate, metal-embrittling chemicals can poison, kinetic weapons can lethally hit the head or neck, lasers can permanently blind, and so on. While 'non-lethal' is the most accepted phrase, some have suggested alternate terms such as 'disabling', 'less than lethal', 'strategic immobilizers', 'pre-lethal', and others.[3] To establish a common understanding, this paper will accept the term 'non-lethal weapons' and the DoD definition as;

> *"weapons systems that are explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment."*[4]

The *expectation* of safety will become the lynchpin for development of rules of engagement with these weapons. This paper will also use the term 'U.S.' and 'U.S. forces' but intends for these to include coalition forces when appropriate.

The concepts underlying non-lethal weapons vary widely in their current and future development. As shown in greater detail in Appendix A, they may be grouped into the following

categories (although some define additional categories such as 'kinetic'):[5] †

Acoustic	Lasers	Optical
Biological	Microwave	Other
Chemical		

History: In his book, Non-Lethal Weapons: War Without Death, David Morehouse correctly states that weapons are a means by which one person forces another to submit, and that this is the unchanging nature of war.[6] The modern challenge, then, is to change the weapons to better conform to the modern idea of humanity. In a sense however, non-lethal weapons are actually not new. In the Biblical assault on Jericho, the Israelites marched around for seven days, blew horns and shouted until the city's walls came tumbling down (acoustics). The ancient Romans outlawed a variety of poison weapons due to their perceived inhumanity (chemical) and similarly the Russians, in the 1868 Declaration of St. Petersburg, sought to eliminate exploding bullets. Use of non-lethal weapons continued in the 20th century. In the late 1960's, the U.S. used herbicides (Agent Orange) and CS gas (tear gas) in Vietnam, while the Viet Cong used small caliber bullets (22 cal.) to injure without killing U.S. forces. In 1970, the British used CS gas, rubber and plastic bullets, and water cannons in their conflict with Northern Ireland.[7] They also experimented with use of several acoustic systems. More recently, Iraq used lasers, chemical, and biological weapons in the 1980's against both the Iranians and their own Iraqi countrymen. But until this point, the media had little effect on their use one way or another. In the late 1980's

† Appendix (A) shows some of the types of weapons that each category encompasses and the intended target. It is not, however, to be considered exhaustive or authoritative. The rapidly developing, technology-based non-lethal weapons industry is extremely dynamic and often shrouded in secrecy. It is also generally agreed that the term does not include electronic warfare, psychological operations, information warfare (such as computer viruses), and precision-guided munitions (which similarly seek to minimize collateral damage).

this began to change. The Commandant of the Marine Corps, in a joint concept paper for non-lethal weapons, recounted the effects of this new factor – dubbed the "CNN effect":

> *"Between 1987 and 1993, Palestinian civilians protested Israeli occupation in an ongoing campaign of loosely organized confrontations in which Palestinian youths burned automobiles and pelted Israeli Defense Force (IDF) troops with rocks. Israeli troops attempted some use of non-lethal weapons, but the effects were limited by the low technology devices available, which proved inadequate to meet escalating civil unrest. When IDF troops resorted to deadly force, the resulting civilian casualties undermined international support for the Israeli government's policy. Thus, civilians armed only with paving stones succeeded in employing force to wrest an important political concession from a nation which had previously proven its military dominance of the region in a series of conventional conflicts."*[8]

General Sheehan perceptively summarized this new significance of media and non-lethal warfare in remarks made at the Non-Lethal Defense Conference in March 1996:

> *"In the CNN era, an individual's decision to use or not use deadly force is no longer merely a tactical decision. The implications of the decision will be immediately broadcast to every capital in the world. It therefore has a strategic dimension."*[9]

In the 1991 Gulf War, U.S. forces used Tomahawk cruise missiles with spools of carbon fibers to deactivate power stations and EC-130E aircraft over-rode Iraqi TV and radio programming with coalition messages and dropped millions of leaflets urging Iraqis to surrender and telling how. When the U.S. went to Somalia in 1993, forces were armed with a wide variety of non-lethal weapons including sticky foam, aqueous foam, aerosol pepper spray, stinger cartridges, and various wood, bean, and rubber bullets. Although the weapons were rarely used, General Zinni, the Marine commander of UN forces being withdrawn from Somalia, said he believed that our adversary's knowledge that we possessed these weapons had a deterrent effect which avoided U.S. casualties. He further recommended that non-lethal weapons be included in all future U.S. force deployments.[10]

Thus the "CNN-effect" has changed the nature of war fighting, but not the nature of war. Nations will continue trying to compel others to submit to their will, but with non-lethal weapons a new dimension is added to mollify public anguish stirred by this media hype.

Issues for Rules of Engagement

"Still in thy right hand carry gentle peace, to silence envious tongues"
William Shakespeare

Shakespeare's notion of 'carry gentle peace' can be interpreted as recognizing of the need for the non-lethal tool to appease critics vocalized by the 'CNN-effect'. But, as with any tool, one must know how to use it – hence rules of engagement. Rules of engagement (ROE) are defined in Joint Publication 1-02 as, "Rules which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered."[11] In the past, development of ROE was based primarily on only two military options; no force or lethal force. With the refinement of non-lethal weapons, force has become a 'continuum'[12] along which proportional response can be matched to enemy action (Figure 1). As the figure shows, for any enemy action there are appropriate U.S. responses that could vary from mere presence to non-lethal or lethal force. The ROE will determine this response. But while the ROE must allow for an appropriate response, it must also be flexible enough to allow for lethal or non-lethal results when differences in the situation warrant it. This will be explored further in later sections. This concept of 'proportional response' had, until recently, been used to suggest that the U.S. would kill only as many people as did the enemy's action. Now, at the soldier level, it is a fundamentally new concept. No longer is there just black and white, life and death, but also the non-lethal shades of gray. There are, however, many new ROE considerations that non-lethal weapons bring. They can be grouped into the following five broad categories: risk, humanitarian, political, objective, and legal issues. Elements of each category will be discussed in the next sections.

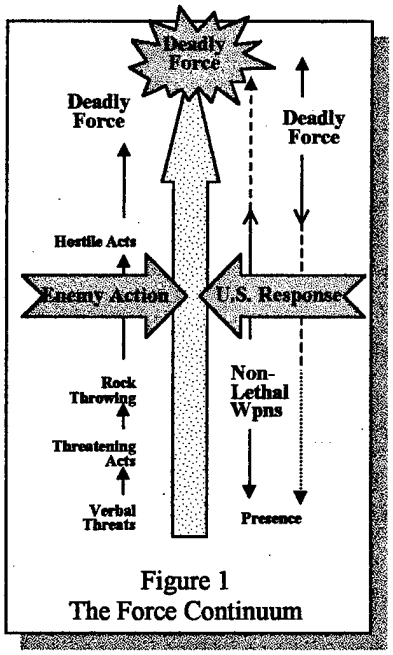


Figure 1
The Force Continuum

RISK ISSUES:

The primary element of risk is *reduction of own lethal force capability*. It is DoD policy that there should be a net improvement with non-lethal weapons in readiness or performance...that is, the cost must not outweigh the benefits. Additionally, non-lethal weapons, "...must not create undue burdens."[13] But 'net improvement' in one area (non-lethal force) is likely to cause reduction in another (lethal force). Available space for logistics transportation to the scene of action, and the soldier's carrying capacity, are limitations that will necessarily trade lethal for non-lethal equipment. The risk is the user's life. In some cases the luxury of having both capabilities is just that, a luxury. To avoid unnecessary risk to the user, ROE should consider the necessary trade-off in availability and capabilities of both lethal and non-lethal weaponry. The U.S. Marine Corps recognized this and drew up a list of do's and don'ts for ROE following operations in Somalia which included the following:

- *No Marine should be put at risk in an attempt to employ non-lethal means*
- *Less lethal means should not be used in lethal situations*
- *Units using less lethal means should always be covered with lethal weapons as back-up*
- *Non-lethal weapons should not be used just to use them.*[14]

A second critical element of the risk consideration is *indecision*. As noted above, non-lethal weapons have created a 'force continuum' that eliminates old black and white paradigms. But, this continuum of force can cause a similar continuum of indecision over weapon use and/or what the situation warrants according to the ROE. For example, ROE for certain non-lethal weapons during Operation United Shield in Somalia required the *same* 'hostile intent' criteria as for lethal force. If a soldier or Marine has to wait until deadly force is authorized (implying that his own life is at risk) before he can shoot a belligerent with a bean bag or rubber baton, why would he or she resort to non-lethal means at all?[15] There was widespread uncertainty over the *intent* of the ROE. Similarly, in Bosnia there was frequent shifting back and forth between peacekeeping and

peace enforcement operations, each with differing ROE. This boundary had to be continually clarified and was used by the opposition to induce confusion and bait UN forces.[16] In summary, ROE must minimize indecision by being clear, easy to apply, and flexible enough to accommodate a changing situation and 'force continuum' from non-lethal to lethal weapons.

Intrinsic in some non-lethal weapons is another element of risk that must be considered in ROE development – *countermeasures*. A handkerchief can protect against tear gas, a few seconds warning can prevent optical flashes from being effective, a canvas cover can shield equipment from embrittlers and carbon fiber short circuits, weather can deteriorate fuel modifiers and traction reducing agents, etc. Most non-lethal weapons have both simple and inexpensive countermeasures that can be employed against them. ROE must recognize the very real possibility of enemy neutralization of our non-lethal weapons, and then permit rapid transition along the force continuum to other actions (up or down).

Fratricide with non-lethal weapons is an important element of risk that can work both for and against U.S. forces. The likelihood of non-lethality allows the use of non-lethal weapons in situations where fratricide is possible or even likely. Could, for example, the use of tear gas against a rioting mob be justified when some friendly forces in the area don't have gas masks? Many would answer 'yes'. But, what about those non-lethal weapons that fall higher on the force continuum like acoustic or low-energy laser weapons? As they approach the violence of lethal weapons fratricide will become more of a concern. ROE for lethal weapons have typically been very sensitive to the possibility of fratricide and required positive identification of the target prior to using a weapon. For example, in Bosnia, UN forces were shelled with mortar fire resulting in the deaths of six Egyptian peacekeepers. The UN Rapid Reaction Force was not able to return fire because ROE required *visual confirmation* of the enemy.[17] With certain non-lethal

weapons, ROE could have been less restrictive and thereby permitted immediate retaliation. To be effective, ROE must continue to include restrictions that reduce fratricide, but these restrictions should vary along the force continuum with the lethality of the weapon employed.

A risk element particularly pertinent to U.S. forces, because of their high-tech nature, is *vulnerability to non-lethal weapons* such as high power microwave and directed energy pulses designed against electronics. While most less-developed countries are a long way from achieving this technology, countermeasures have not been developed to thwart it. And, as was discussed in the previous section, this vulnerability might be accentuated by the greater potential for fratricide that non-lethal weapons bring. This risk element suggests that ROE must always strongly consider the risk of fratricide, not only in casualties to U.S. personnel, but also in casualties to U.S. equipment from use of non-lethal weapons (the so called 'soft kills').

Battle Damage Assessment (BDA) is another element of risk in developing ROE for non-lethal weapons. Unlike most lethal weapons, some of the non-lethal weapons systems do not permit simple BDA. In a recent example from Operation Desert Storm, Tomahawk missiles carrying carbon fiber strands successfully shorted out an Iraqi power generation plant, but coalition forces were not able to *tell* if the mission was successful. None of the structure was visibly damaged. Similarly, a flash device that temporarily disorients a group of belligerents may or may not have been effective against all of them. The ROE must recognize BDA difficulty and the possibility of incomplete weapons effectiveness, and then allow for follow-on measures up or down in force level.

HUMANITARIAN ISSUES:

Intentional *maiming* is considered the single most heinous of actions in war. From land mines hidden in children's' toys to explosive and small caliber bullets, weapons that permanently injure without killing have the contempt of the civilized world. Nick Lewer and Steven Schofield, in their book Non-Lethal Weapons: A Fatal Attraction, highlight that, "international humanitarian law requires that weapons should not be indiscriminate or involve unnecessary suffering."[18] Despite the pleasing vernacular, non-lethal weapons have brought new risks of maiming through laser blinding, directed-energy disruption of brain waves and internal organs, adverse reaction to chemical and biological agents intended for equipment, kinetic impact of rubber, plastic and wooden bullets, and others. Developers of ROE must realize the potential for maiming and lethal results with non-lethal weapons, but not forget that lethal weapons can have the same results – the difference is the *expectation* of non-lethality.

Slaughter is the other humanitarian issue for consideration in development of ROE. In an article in National Defense magazine, Dr. Edward G. Liszka and Col. Dennis B. Herbert stated, "Pentagon officials believe that non-lethal capabilities reflect the values of the American people...These values were readily evidenced in the adverse public reaction to Iraqi casualties along the 'highway of death.' That reaction, more than anything else, contributed to the Gulf War's early end."[19] President Bush's response when questioned about halting our attacks in Iraq: "we are not in the business of slaughter."[20] The issue is best summed by Fritz Kalshoven in Constraints on the Waging of War, as follows:

> *"The questions at issue in humanitarian law, no matter how varied and complicated, can be reduced to two fundamental problems: viz., the problem of balancing humanity against military necessity, and the obstacles posed by the sovereignty of states."*[21]

In this vein, the challenge is twofold: first the ROE must be specific enough to express the distinction between humane and inhumane actions for the specific non-lethal weapons, and

secondly the ROE must allow for the escalation of force along the force continuum, potentially using increasing levels of the same weapon (e.g. infra-sound weapons). Therefore, ROE must always *first* protect U.S. forces, but should recognize the importance of maintaining the 'moral high-ground' by accommodating U.S. and international values.

POLITICAL ISSUES:

While there are many intricate political issues in conflicts between nations, their impact on ROE is primarily in an effort to establish and maintain *legitimacy.* Frequently touted concepts such as maintaining the 'moral high-ground' and 'winning the hearts and minds' of the populous are politically motivated to gain legitimacy. Legitimacy justifies our actions in American and world opinions, and helps maintain public, as well as coalition, support. It is partially based on two notions derived from the Law of Armed Conflict; 'proportionality' and 'necessity'.[22] † In the conflict between the Israeli Defense Force and Palestinian youths noted above, Israel lost legitimacy because their use of lethal force was not proportional to the actions of rock throwing youths. Non-lethal weapons present a unique ability to deal with the proportionality issue, but are not a panacea. A difficult problem arises when a low-threat action receives an appropriate low-force non-lethal weapons response, which inadvertently ends up maiming or killing. The second notion, necessity, is usually established at the strategic level by political means (statements by world leaders, UN resolutions, etc.). Inhumane, disproportional, or unlawful actions can cause supporters to reconsider their view of the necessity of the conflict. Military commanders must understand this necessity to avoid undermining it. It is imperative then, that for ROE to support the political objective, they should serve to promote and maintain legitimacy through a balance of proportionality, necessity, and restraint.

† These two notions will be developed further in the section on 'Legal Issues'.

Another political issue for consideration in ROE development is *escalation* of a crisis. Non-lethal weapons, by their very nature in the force continuum concept, offer earlier intervention in a potential crisis. For U.S. forces, the Standing Rules of Engagement allow for use of "all necessary means available"[23] in self-defense based on demonstrated hostile *intent* alone. (This is a lesson-learned from Beirut in 1983 when soldiers were severely restricted in weapons preparedness.) With non-lethal weapons, the ROE should be considerably less restrictive, but do risk provoking an escalated response. It should be recognized by their nature, that ROE inevitably establish the balance between risk of escalation and risk to the soldier.

OBJECTIVE:

The issues of *objective* are those that identify a scenario with law enforcement vice military culture. Mr. David Boyd, Director of the Office of Science and Technology at the National Institute of Justice, recently brought up an interesting notion in this vein. "In the military, the mission comes first...you try to minimize collateral damage. For law enforcement, it's that civilian establishment, those collateral folks who are the mission, it's their protection."[24] For many MOOTW scenarios the military acts in a law enforcement role yet has a leadership culture of 'mission first'. Notwithstanding that the mission may *be* to protect the civilian establishment, military culture will tend to focus on the 'enemy' when confronted with conflict, not the civilians. Non-lethal weapons help bridge this difference by minimizing, but certainly not eliminating, the risk of collateral damage. ROE should recognize the military culture's focus on the mission while addressing the necessity for minimum collateral damage. Overly restrictive or confusing ROE, like that later used in Somalia, focused too heavily on the potential for collateral damage.

LEGAL ISSUES:

It is beyond the scope of this paper to attempt to cover all of the legal issues associated with development of ROE for non-lethal weapons. To do so is a huge undertaking that would necessitate legal interpretation of numerous rulings as they apply to both classes of, and individual weapons. Even more vexing is the problem that doctrine, policy and ethical guidelines have not kept pace with the speed of development and fielding of some of these weapons. Therefore, it is more worthwhile to discuss the broad legal issues involved, and advise the commander that legal experts should perform a thorough review of any proposed ROE.

The Law of Armed Conflict is the main, internationally recognized, legal basis for armed conflict, and one to which U.S. policy pledges compliance. There are three general principles that apply. Foremost, the *humanity* principle embraces two concepts (*proportionality* and *necessity*) that combine to require that suffering should not be inflicted on combatants or non-combatants beyond that which is required to accomplish legitimate military purposes. Some chemical, biological, and laser weapons that cause extensive and long-term suffering could be particularly susceptible to challenge under this principle. Although most of these have been banned by treaty, new concepts (such as superadhesives or fuel combustion modifiers) have yet to be specifically placed, and may be considered acceptable for war and/or MOOTW. The *discrimination* principle prohibits use of weapons or methods of warfare that cannot be directed against a specific military target. While intended for lethal weapons, improper use of non-lethal chemical, biological, or even acoustic weapons could be considered indiscriminate under this principle. Thirdly, the *treachery* or *perfidy* principle prohibits acts that are basically dishonorable (such as attacking from under symbols of the Red Cross or white flag of surrender).[25] Even in conventional combat, these principles are open to wide interpretation. The

additional ambiguities of non-lethal weapons (not the least of which is the variable nature of their lethality) make interpretation even more uncertain. U.S. policy of compliance with the Law of Armed Conflict dictate that ROE must carefully consider the potential for unintended inhumane or unethical actions as a result of employing non-lethal weapons. Like some of the issues already discussed, this issue is neither new nor unique to non-lethal weapons. The potential for encroachment on these rules has always existed for the lethal weapons we have employed – it is our training, doctrine, and sound ROE that prevent major infractions.

There are other relevant legal standards. From the Lieber Code of 1863 to the Chemical Weapons Convention of 1993, there have been numerous attempts to restrict weapons that kill, maim, or cause suffering in ways thought to be inhumane. The most significant events in modern non-lethal weapons development are shown in Appendix B. As a gross generalization, one can assume that there is multi-national agreement to *not* use chemical, biological, gas, or laser-blinding weapons in warfare. (Note that gas such as tear gas is permitted in peacetime, presumably by police, but this can also apply in MOOTW.) Despite the fact that all nations (including the U.S.) are not signatory to all agreements, there is a strong legitimacy established by the participants that would condemn any attempt to use these weapons in a contrary way. As a nation concerned about the world perception of U.S. legitimacy, our ROE for non-lethal (and lethal) weapons must strive to comply with international restrictions of law and convention, while allowing for the differences in applicability in peacetime and war.

Current Proposals:

There have been two suggestions in recent years for non-lethal weapons ROE. The first of these proposes a dedicated ROE training program and the second presents a ROE decision matrix.

ROE training was suggested by Col. Frederick Lorenz as important for Marines based on lessons learned in recent conflicts.[26] He proposed a training program centered on the notion that we should prepare in peacetime using standard, but flexible rules of engagement that would be applicable from MOOTW to war. In a modification from the Army version, he proposed the 'RAMP' model (Figure 2). Using the model, Marines would be trained in advance to become familiar with the standard ROE, which could then be adjusted for a specific crisis.

ROE Training Card

Nothing in these rules limits an individual's authority and obligation to take all necessary and appropriate actions to defend himself and his unit.

Right to defend. Always return fire with aimed fire. You have the right to use force to repel **hostile acts.**

Anticipate attack. You have the right to use force to respond to clear indications of **hostile intent.**

Measure your force. When time and circumstances permit, use only the force that is **necessary** and **proportional** to protect lives and accomplish the mission.

Protect with deadly force only human life and sensitive, mission essential property designated by the commander.

Figure 2

The second suggestion, a ROE decision matrix for MOOTW, was proposed by CWO2 John Murphy in his 1996 article, Rules of Engagement For Operations Other Than War.[27] This matrix (reproduced as Appendix C) shows the continuous range of graduating enemy actions along with an appropriate proportional response. He very properly likens the ROE issue to selecting a floor while riding an elevator (vice a step-wise graduated response approach). The concept is that one does not need to start at the lowest step and work up...the response should be appropriate for the situation, which could mean starting off with lethal force.

Conclusions

> *"Let us not hear of generals who conquer without bloodshed. If a bloody slaughter is a horrible sight, then that is a ground for paying more respect to War, but not for making the sword we wear blunter and blunter by degrees from feelings of humanity, until some one steps in with one that is sharp and lops off the arm from our body."*[28] *Clausewitz*

In this passage, Clausewitz can be seen (as he often is) as the protagonist to Sun Tzu...the champion of bloody conflict versus the vindicator of bloodless war. But, whatever either of these theorists would have thought of non-lethal weapons, their writings both recognize the imperative for realistic preparations prior to going into conflict. By making the rules to either prevent and de-escalate a crisis, or win in combat, ROE are a vital piece of those preparations. *The concepts of Lorenz and Murphy above should be combined* to improve this preparation through pre-crisis ROE training and seamless integration of a 'matrix' concept of lethal to non-lethal force application. Murphy's matrix should be expanded to include war, and will require two main revisions. First, it suggests that deadly force is only appropriate for the most aggravated of situations. While this idea of waiting for a deadly threat before issuing a deadly response is logical in theory, it inhibits flexibility and freedom of action that is vital to survive in combat. Second, the matrix implies *reactive* actions and inhibits the offensive. In MOOTW or war, ROE must permit *offensive* action, with lethal or non-lethal weapons, when appropriate to accomplish the mission.

As discussed above, today's environment makes future crises fraught with dangers, not only from the forces of the enemy, but also from the difficulty of accommodating our own ethical and legal standards. It is assumed that we will win our conflicts, but if we fail to properly restrict our actions, we risk losing legitimacy and having our 'sword blunted' by the further legislation of the international society's discontent (like the Israelis). Non-lethal weapons offer an appeal to the

concepts of both Clausewitz *and* Sun Tzu, but one of complex issues requiring considerable good judgement.

In summary, rules of engagement need to support the good judgement that our soldiers already possess. They must be developed in such a way that they help us reach our standards while not hindering the mission and risking lives. They must be simple and incorporated into early training, and they must properly address the issues discussed above:

- Reduction of own lethal force capability
- Indecision
- Countermeasures
- Fratricide
- Vulnerability
- Battle Damage Assessment
- Maiming
- Slaughter
- Legitimacy
- Escalation
- Military culture
- Proportionality
- Necessity
- Discrimination
- Treachery
- Legal agreements

And because non-lethal weapons are so inextricably linked to lethal weapons, the *ROE must allow them both to work as a complementary team in the force continuum and apply across the spectrum from MOOTW to war*. As General Meyer said, "It's intended that they're part of the kit that can be used in conjunction with lethal weapons even in a lethal war."[29]

Appendix A

Types of Non-Lethal Weapons[30]

Type	*Description*	*Operations*	*Target*
Acoustic			
Infrasound beam	Disorientate Disrupt material structures	Vehicle mounted Vehicle mounted	Personnel Structures
Bullet/pulse	Physical force weapon	Vehicle mounted	Personnel
Biological			
Biodeterioration	Degrade materials	Direct/vehicle mounted	Equipment
Chemical			
Fuel/combustion Modifiers	Degrade fuel in acft/tanks	Direct employment by military personnel	Equipment
Supercorrosives/ supercaustics	Degrade materials	Direct/air-launched	Equipment
Embrittling	Degrade/crack materials	Direct/mortar/artillery/etc	Equipment
Superadhesives	Produces rapid adhering of materials	Artillery/vehicle/aircraft	Equipment
Superlubricant	Produces loss of traction	All	Roads/airfields
Foams	Sticky and/or dense	Vehicle/direct by personnel	Personnel
Calmatives/ incapacitants	Affect human behavior	Direct/vehicle mounted	Personnel
Lasers			
High-energy	Destroy optical sensors	Vehicle/aircraft mounted	Equipment
Low-energy	Flash-blind people and disable optical sensors	Hand-held/vehicle/aircraft	Personnel & equipment
Pulsed-chemical	Produce high-pressure shock wave	Vehicle/aircraft mounted	Equipment/ structures
Microwave			
Repeat pulse	Disrupt electronic equipment	Vehicle/aircraft	Equipment
Single pulse/ EMP	Short out power generation and electronic equipment	Cruise missiles	Equipment
Optical munitions			
Uni-directional	Flash-blind people	Artillery/air-launched	Personnel
Isotropic	Flash-blind people	Artillery/air-launched	Personnel
Pulsing light	Disorientate people	Vehicle-mounted	Personnel

Others			
Entanglers	Nets, cables, chains, etc to trap vehicles & personnel	Direct/vehicle-mounted	Personnel/ equipment
Conductive ribbons/wires	Shorts out electrical systems and power generation equipment	Cruise missile/ other guided missiles	Equipment
Conducive particles	Shorts out electrical systems and power generation equipment		Equipment
Stun weapons	Variety of hand-held electrical stunners	Direct	Personnel
Bullets	Wooden, rubber, etc.	Direct/vehicle mounted	Personnel
Computer virus	Alter/crash computer systems	Direct/network	Equipment
Disinformation/ Deception	Political propaganda	Broadcasts/leaflets etc.	Personnel
Obscurants	Obscure sensors & vision (smoke-like substances)	Vehicle/aircraft	Personnel/ equipment
Optical coating	Materials painted on optics and/or windows	Direct/small arms	Equipment

Appendix B

Summary of Declarations and Conventions with Implications for Non-Lethal Weapons[31]

- The Lieber Code – 1863
  - cornerstone of humanitarian law.
  - established that military necessity does not allow cruel means and methods, and must consider long-term consequences of particular weapons.
- Declaration of St. Petersburg – 1868
  - the only 'legitimate' object during war is to weaken the military force of the enemy, and weapons that uselessly aggravate suffering or make death inevitable exceeds this object.
  - sought to legally prohibit certain inhumane weapons: projectiles; < 400g weight, explosive, or coated w/inflammable substances.
- Hague Declaration (IV, 2) Concerning Asphyxiating Gases – 1899
  - agreement to not use projectiles that deliver asphyxiating or deleterious gasses.

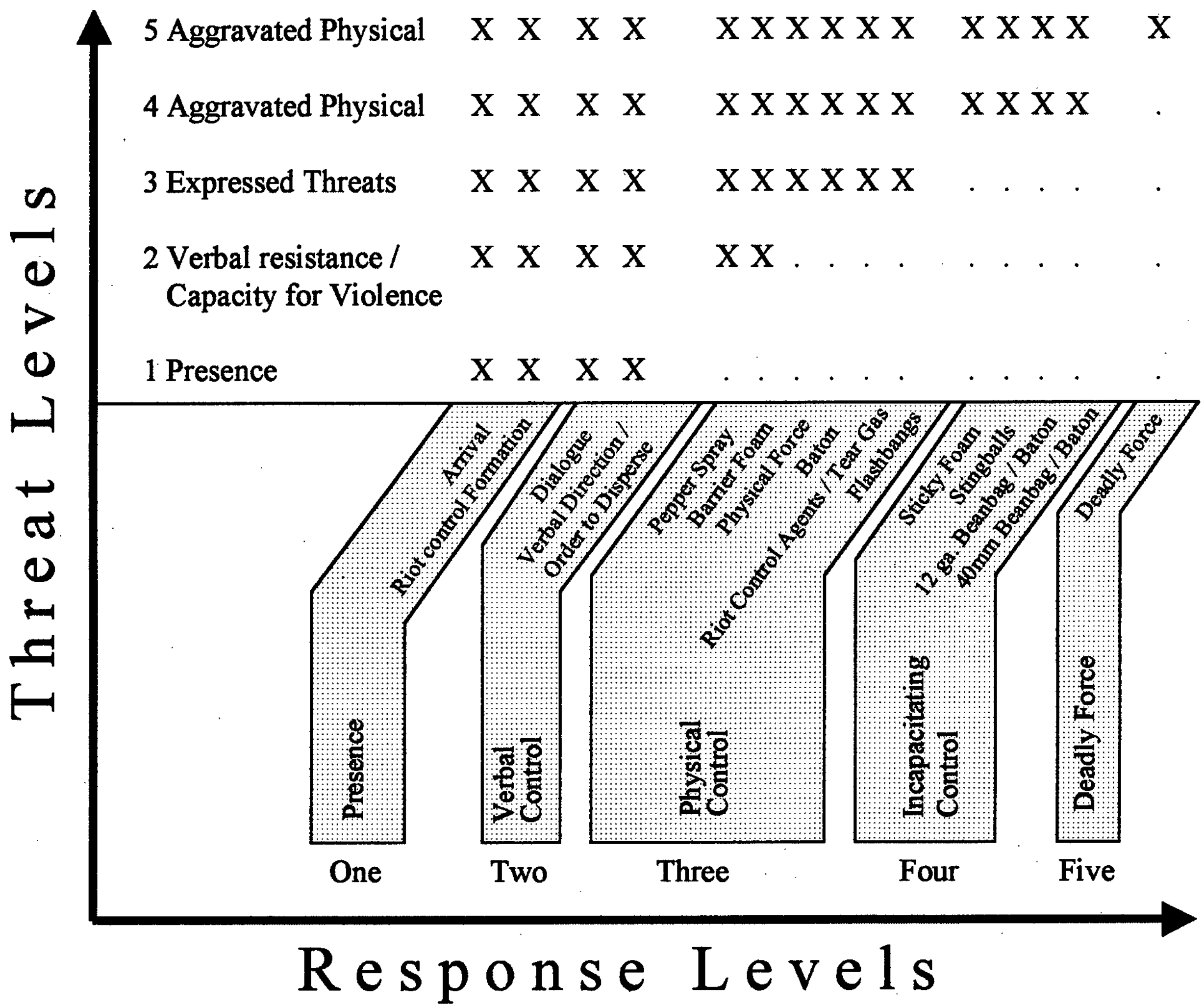
  Hague Declaration (IV, 3) concerning Expanding Bullets – 1899
  - agreement to not use bullets that expand or flatten in the human body

  Hague Declaration (IV) Respecting the Laws and Customs of War on Land – 1907
  - declaration that it is 'especially forbidden' to use arms that cause unnecessary suffering
- The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gasses, and of Bacteriological Methods of Warfare – 1925
  - condemnation by the general opinion of the civilized world of use of asphyxiating, poisonous, or other gasses and all analogous liquids, materials or devices, and bacteriological methods of warfare
- Convention on the Prohibition of the development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction – 1972
  - agreement to never develop, produce, stockpile or otherwise acquire or retain microbial or other biological agents or toxins except for prophylactic or peaceful purposes.
- Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques – 1977
  - agreement to not use environmental modification techniques (earthquakes; changes to weather, climate, ocean currents, ozone layer, ionosphere; etc.) having widespread, long-lasting or severe effects as a means of injury
- Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (also known as the UN Inhumane Weapons convention – UNWC) – 1980
  - agreement under auspices of the United Nations
  - prohibits weapons, projectiles, material and methods that cause superfluous injury or unnecessary suffering (specifically non-detectable fragments, mines, booby traps, and incendiary weapons)
  - prohibits methods of warfare that cause widespread, long-term and severe damage to the natural environment
- Chemical Weapons Convention – 1993
  - bans development, production and stockpiling, and use of chemical weapons, and requires their destruction

    bans use of riot control agents as a means of warfare

Appendix C

Rules of Engagement Matrix for MOOTW[32]



Areas marked with an "X" represent suggested, acceptable, beginning, response levels. Any response in an unmarked area requires explanation.

Threat Levels:
1. Presence. A subject or crowd on the scene accompanied by suspicious activity.
2. Verbal Resistance/Capacity for Violence. A subject or crowd verbally refuses to comply with requests or attempts to control the situation.
3. Expressed Threats. A subject or crowd attempts to defeat controlling actions.
4. Aggressive Physical Behavior. A subject or crowd that makes overt, hostile, attacking movements that may cause injury, but not likely to cause death or great injury.
5. Aggressive Physical Behavior. A subject or crowd that makes overt, hostile, attacking movements with or without a weapon, with the intent and apparent ability to cause death or great injury.

Notes

[1] Sun Tsu, The Art of War, trans. Samuel B. Griffith (New York: Oxford University Press, 1963), 77.

[2] Private First Class Richard Kowalewski, quoted in Time, Vol. 142, #16, October 18, 1993, 45.

[3] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 2.

[4] Department of Defense, "A Joint Concept for Non-Lethal Weapons," Marine Corps Gazette, March 1998, A-1.

[5] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 8-9.

[6] David Morehouse, Non-Lethal Weapons: War Without Death, (Wesport, CT: Praeger Publishers, 1996), 2.

[7] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 59.

[8] Department of Defense, "A Joint Concept for Non-Lethal Weapons," Marine Corps Gazette, March 1998, A-2.

[9] General John J. Sheehan, quoted in "Nonlethal Weapons – Let's Make it Happen," Remarks, Non-Lethal Defense Conference II, Washington D.C, 7 March 1996, <http://www.stl.nps.navy.mil/lists/c4I-pro/4495.html>, (27 March 1998)

[10] Malcolm Weiner, quoted in "America's Defense Monitor" program #850, 27 September 1995. <http://www.cdi.org/adm/transcripts/850.htm>, (26 March 1998).

[11] Joint Chiefs of Staff, Approved Terminology: Joint Pub 1-02, DOD Dictionary, 23 March 1994, Updated thru April 1997 (Joint Pub 1-02) (Washington D.C.: U.S. Government Printing Office, 23 March 1994), 461.

[12] The origin of this term is not known, but many documents now acknowledge this concept of a 'force continuum' based on lethal and NLW capabilities.

[13] Department of Defense, "A Joint Concept for Non-Lethal Weapons," Marine Corps Gazette, March 1998, A-3

[14] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 71.

[15] Frederick M. Lorenz, "Non-Lethal Force: The Slippery Slope to War?," Parameters, Autumn 1996, 52-62.

[16] Mr. Timothy L. Thomas, "Russian "Lessons Learned" In Bosnia," <http://leav-www.army.mil/fmso/fmsopubs/issues/bosleslr/bosleslr.htm>, (2 May 1998).

[17] International Peacekeeping News, "Serbs shell Sarajevo," International Peacekeeping News, Issue No. 12, Sep-Oct 1995, Copyright © Farndon House Information Trust and Bradford School of Peace studies, <http://www.brad.ac.uk/acad/confres/lpn12.html #C-0130>, (2 May 1998).

[18] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 14.

[19] Edward G. Liszka and Dennis B. Herbert, "Non-Lethal Capabilities Are a Viable Option in a Fast Changing Landscape," National Defense, December 1997, 18.

[20] Gordon L. Campbell, "Setting Our Weapons To Stun: The Ethics of "Nonlethal" Combat," A paper submitted for presentation to the Joint Services Conference on Professional Ethics XIX, Washington, D.C., 31 January 1997, <http://www.usafa.af.mil/jscope/Gordon97.htm>, (2 May 1998).

[21] Fritz Kalshoven, Constraints on the Waging of War, (Geneva: ICRC, 1987), 159.

[22] Department of Defense, "A Joint Concept for Non-Lethal Weapons," Marine Corps Gazette, March 1998, A-2.

[23] Chairman of the Joint Chiefs of Staff, Standing Rules of Engagement For US Forces, CJCSI 3121.01 (Washington: 1 October 1994), A-4.

[24] Mr. David Boyd, quoted in "America's Defense Monitor" program #850, 27 September 1995, <http://www.cdi.org/adm/transcripts/850.htm>, (26 March 1998).

[25] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 83-84.

[26] Frederick M. Lorenz, "Rules of Engagement Training," Marine Corps Gazette, September 1996, 77.

[27] John R. Murphy Jr., "Rules of Engagement For Military Operations Other Than War," Marine Corps Gazette, September 1996, 80 (The ROE matrix from this article was actually printed in the December 1996 issue)

[28] Carl von Clausewitz, On War, Translated and edited by Michael Howard and Peter Paret, (Princeton: Princeton UP, 1976), 345.

[29] General Edward Meyer, quoted in "America's Defense Monitor" program #850, 27 September 1995, <http://www.cdi.org/adm/transcripts/850.htm>, (26 March 1998).

[30] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 8-9 {slightly modified from original}.

[31] Nick Lewer and Steven Schofield, Non-Lethal Weapons: A Fatal Attraction?, (Atlantic Highlands, NJ: Zed Books Ltd., 1997), 86 {slightly modified from original}.

[32] Murphy, John R. Jr., "ROE in MOOTW," Marine Corps Gazette, December 1996, 9.

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